Despite the increase in demand for budget analysts, competition for jobs should remain keen due to the substantial number of qualified applicants. Candidates with a master's degree should have the best job opportunities. Familiarity with computer financial software packages should also enhance a jobseeker's employment prospects in this field.

Expanding automation is playing a complex role in the job outlook for budget analysts. Computers allow budget analysts to process more data in less time, enabling them to be more productive. However, because analysts now have a greater supply of data available to them, their jobs are becoming more complicated. In addition, as businesses become increasingly complex and specialization within organizations becomes more common, planning and financial control increasingly demand attention. These factors should offset any adverse computer-induced effects on employment of budget analysts.

In coming years, companies will continue to rely heavily on budget analysts to examine, analyze, and develop budgets. Because the financial analysis performed by budget analysts is an important function in every large organization, the employment of budget analysts has remained relatively unaffected by downsizing in the Nation's workplaces. In addition, because financial and budget reports must be completed during periods of economic growth and slowdowns, budget analysts usually are less subject to layoffs during economic downturns than many other workers.

Earnings

Salaries of budget analysts vary widely by experience, education, and employer. Median annual earnings of budget analysts in 1998 were $44,950. The middle 50 percent earned between $36,190 and $61,410. The lowest 10 percent earned less than $30,000 and the highest 10 percent earned more than $81,160.

According to a survey conducted by Robert Half International, a staffing services firm specializing in accounting and finance, starting salaries of budget and other financial analysts in small firms ranged from $27,000 to $30,500 in 1998; in large organizations, from $29,500 to $33,750. In small firms, analysts with 1 to 3 years of experience earned from $30,750 to $36,750; in large companies, from $34,000 to $44,750. Senior analysts in small firms earned from $36,500 to $42,000; in large firms, from $41,750 to $53,750. Earnings of managers in this field ranged from $42,750 to $54,750 a year in small firms, while managers in large organizations earned between $51,750 and $69,500.

In the Federal Government, budget analysts usually started as trainees earning $20,600 or $25,500 a year in 1999. Candidates with a master's degree might begin at $31,200. Beginning salaries were slightly higher in selected areas where the prevailing local pay level was higher. The average annual salary in 1999 for budget analysts employed by the Federal Government in nonsupervisory, supervisory, and managerial positions was $52,000.

Related Occupations

Budget analysts review, analyze, and interpret financial data; make recommendations for the future; and assist in the implementation of new ideas. Workers who use these skills in other occupations include accountants and auditors, economists, financial analysts, financial managers, and loan officers.

Sources of Additional Information

Information about career opportunities as a budget analyst may be available from your State or local employment service.

Information on acquiring a job as a budget analyst with the Federal Government may be obtained from the Office of Personnel Management through a telephone-based system. Consult your telephone directory under U.S. Government for a local number, or call (912) 757-3000; TDD (912) 744-2299. That number is not tollfree and charges may result. Information also is available from their Internet site: **http://www.usajobs.opm.gov**

Construction and Building Inspectors

(O*NET 21908A, 21908B, and 83005B)

Significant Points

- Local governments, primarily municipal or county building departments, employed nearly 60 percent of these workers.
- Construction and building inspectors tend to be older, more experienced workers who have spent years working in related occupations.

Nature of the Work

Construction and building inspectors examine the construction, alteration, or repair of buildings, highways and streets, sewer and water systems, dams, bridges, and other structures to ensure compliance with building codes and ordinances, zoning regulations, and contract specifications. Building codes and standards are the primary means by which building construction is regulated in the United States to assure the health and safety of the general public. Inspectors make an initial inspection during the first phase of construction, and follow-up inspections throughout the construction project to monitor compliance with regulations. However, no inspection is ever exactly the same. In areas where certain types of severe weather or natural disasters are more common, inspectors monitor compliance with additional safety regulations designed to protect structures and occupants in these events.

Building inspectors inspect the structural quality and general safety of buildings. Some specialize—for example, in structural steel or reinforced concrete structures. Before construction begins, *plan examiners* determine whether the plans for the building or other structure comply with building code regulations, and if they are suited to the engineering and environmental demands of the building site. Inspectors visit the work site before the foundation is poured to inspect the soil condition and positioning and depth of the footings. Later, they return to the site to inspect the foundation after it has been completed. The size and type of structure, as well as the rate of completion, determine the number of other site visits they must make. Upon completion of the project, they make a final comprehensive inspection.

In addition to structural characteristics, a primary concern of building inspectors is fire safety. They inspect structures' fire sprinklers, alarms, and smoke control systems, as well as fire exits. Inspectors assess the type of construction, building contents, adequacy of fire protection equipment, and risks posed by adjoining buildings.

There are many types of inspections and inspectors. *Electrical inspectors* examine the installation of electrical systems and equipment to ensure they function properly and comply with electrical codes and standards. They visit work sites to inspect new and existing sound and security systems, wiring, lighting, motors, and generating equipment. They also inspect the installation of the electrical wiring for heating and air-conditioning systems, appliances, and other components.

Elevator inspectors examine lifting and conveying devices such as elevators, escalators, moving sidewalks, lifts and hoists, inclined railways, ski lifts, and amusement rides.

Mechanical inspectors inspect the installation of the mechanical components of commercial kitchen appliances, heating and air-conditioning equipment, gasoline and butane tanks, gas and oil piping, and gas-fired and oil-fired appliances. Some specialize in boilers or ventilating equipment as well.

Plumbing inspectors examine plumbing systems, including private disposal systems, water supply and distribution systems, plumbing fixtures and traps, and drain, waste, and vent lines.

Public works inspectors ensure that Federal, State, and local government construction of water and sewer systems, highways,

streets, bridges, and dams conforms to detailed contract specifications. They inspect excavation and fill operations, the placement of forms for concrete, concrete mixing and pouring, asphalt paving, and grading operations. They record the work and materials used so that contract payments can be calculated. Public works inspectors may specialize in highways, structural steel, reinforced concrete, or ditches. Others specialize in dredging operations required for bridges and dams or for harbors.

Home inspectors generally conduct inspections of newly built or previously owned homes. Increasingly, prospective home buyers hire home inspectors to inspect and report the condition of a home's major systems, components, and structure. They are typically hired either immediately prior to a purchase offer on a home, or as a contingency to a sales contract. In addition to structural quality, home inspectors must be able to inspect all home systems and features, from plumbing, electrical, and heating or cooling systems to roofing.

The owner of a building or structure under construction employs *specification inspectors* to ensure work is done according to design specifications. They represent the owners' interests, not the general public. Insurance companies and financial institutions also may use specification inspectors.

Details concerning construction projects, building and occupancy permits, and other documentation are generally stored on computers so they can easily be retrieved, kept accurate, and updated. For example, inspectors may use laptop computers to record their findings while inspecting a site. Most inspectors use computers to help them monitor the status of construction inspection activities and keep track of issued permits.

Construction inpsector confers with supervisor to ensure that construction conforms to approved plans.

Although inspections are primarily visual, most inspectors, except home inspectors, may use tape measures, survey instruments, metering devices, and test equipment such as concrete strength measurers. They keep a log of their work, take photographs, file reports, and, if necessary, act on their findings. For example, construction inspectors notify the construction contractor, superintendent, or supervisor when they discover a code or ordinance violation or something that does not comply with the contract specifications or approved plans. If the problem is not corrected within a reasonable or specified period of time, government inspectors have authority to issue a "stop-work" order.

Many inspectors also investigate construction or alterations being done without proper permits. Inspectors who are employees of municipalities enforce laws pertaining to the proper design, construction, and use of buildings. They direct violators of permit laws to obtain permits and submit to inspection.

Working Conditions

Construction and building inspectors usually work alone. However, several may be assigned to large, complex projects, particularly because inspectors tend to specialize in different areas of construction. Though they spend considerable time inspecting construction work sites, inspectors also spend time in a field office reviewing blueprints, answering letters or telephone calls, writing reports, and scheduling inspections.

Inspection sites are dirty and may be cluttered with tools, materials, or debris. Inspectors may have to climb ladders or many flights of stairs, or crawl around in tight spaces. Although their work is not generally considered hazardous, inspectors, like other construction workers, wear hard hats and adhere to other safety requirements while at a construction site.

Inspectors normally work regular hours. However, they may work additional hours during periods when a lot of construction is taking place. Also, if an accident occurs at a construction site, inspectors must respond immediately and may work additional hours to complete their report.

Employment

Construction and building inspectors held about 68,000 jobs in 1998. Local governments, primarily municipal or county building departments, employed nearly 60 percent. Employment of local government inspectors is concentrated in cities and in suburban areas undergoing rapid growth. Local governments employ large inspection staffs, including many plan examiners or inspectors who specialize in structural steel, reinforced concrete, boiler, electrical, and elevator inspection.

Another 17 percent of construction and building inspectors worked for engineering and architectural services firms, conducting inspections for a fee or on a contract basis. Most of the remaining inspectors were employed by the Federal and State governments. Many construction inspectors employed by the Federal Government work for the U.S. Army Corps of Engineers. Other Federal employers include the Tennessee Valley Authority and the Departments of Agriculture, Housing and Urban Development, and Interior.

Training, Other Qualifications, and Advancement

Although requirements vary considerably depending upon where one is employed, individuals who want to become construction and building inspectors should have a thorough knowledge of construction materials and practices in either a general area, such as structural or heavy construction, or in a specialized area, such as electrical or plumbing systems, reinforced concrete, or structural steel. Construction or building inspectors need several years of experience as a manager, supervisor, or craft worker before becoming inspectors. Many previously worked as carpenters, electricians, plumbers, or pipefitters.

Because inspectors need to possess the right mix of technical knowledge, experience and education, employers prefer to hire inspectors who have formal training, as well as experience. Most require at least a high school diploma or equivalent, even for those with considerable experience. More often, employers look for persons who have studied

engineering or architecture, or who have a degree from a community or junior college, with courses in construction technology, drafting, mathematics, and building inspection. Many community colleges offer certificate or associate degree programs in building inspection technology. Courses in blueprint reading, algebra, geometry, and English are also useful.

Construction and building inspectors must be in good physical condition in order to walk and climb about construction sites. They must also have a driver's license. In addition, Federal, State, and many local governments may require that inspectors pass a civil service exam.

Construction and building inspectors usually receive much of their training on the job, although they must learn building codes and standards on their own. Working with an experienced inspector, they learn about inspection techniques; codes, ordinances, and regulations; contract specifications; and record-keeping and reporting duties. They may begin by inspecting less complex types of construction, such as residential buildings, and then progress to more difficult assignments. An engineering or architectural degree is often required for advancement to supervisory positions.

Because they advise builders and the general public on building codes, construction practices, and technical developments, construction and building inspectors must keep abreast of changes in these areas. Continuing education is imperative in this field. Many employers provide formal training programs to broaden inspectors' knowledge of construction materials, practices, and techniques. Inspectors who work for small agencies or firms that do not conduct training programs can expand their knowledge and upgrade their skills by attending State-sponsored training programs, by taking college or correspondence courses, or by attending seminars sponsored by various related organizations such as model code organizations.

Most States and cities require some type of certification for employment and, even if not required, certification can enhance an inspector's opportunities for employment and advancement to more responsible positions. To become certified, inspectors with substantial experience and education must pass stringent examinations on code requirements, construction techniques, and materials. The three major model code organizations offer voluntary certification as do other professional membership associations. In most cases, there are no education or experience prerequisites, and certification consists of passing an examination in a designated field. Many categories of certification are awarded for inspectors and plan examiners in a variety of disciplines, including the designation "CBO," Certified Building Official.

Job Outlook

Employment of construction and building inspectors is expected to grow as fast as the average for all occupations through 2008. Growing concern for public safety and improvements in the quality of construction should continue to stimulate demand for construction and building inspectors. Despite the expected employment growth, most job openings will arise from the need to replace inspectors who transfer to other occupations or leave the labor force. Construction and building inspectors tend to be older, more experienced workers who have spent years working in other occupations.

Opportunities should be best for highly experienced supervisors and craft workers who have some college education, engineering or architectural training, or who are certified as inspectors or plan examiners. Thorough knowledge of construction practices and skills in areas such as reading and evaluating blueprints and plans are essential. However, inspectors are involved in all phases of construction, including maintenance and repair work, and are therefore less likely to lose jobs during recessionary periods when new construction slows. As the population grows and the volume of real estate transactions increases, greater emphasis on home inspections should result in rapid growth in employment of home inspectors. In addition, there should be good opportunities in engineering, architectural, and management services firms due to the tendency of governments—particularly the Federal and State—to contract out inspection work, as well as expected growth in private inspection services.

Earnings

Median annual earnings of construction and building inspectors were $37,540 in 1998. The middle 50 percent earned between $29,540 and $47,040. The lowest 10 percent earned less than $22,770 and the highest 10 percent earned more than $61,820. Median annual earnings in the industries employing the largest numbers of construction and building inspectors in 1997 were:

Engineering and architectural services	$36,500
Local government, except education and hospitals	36,300
State government, except education and hospitals	32,700

Generally, building inspectors, including plan examiners, earn the highest salaries. Salaries in large metropolitan areas are substantially higher than those in small local jurisdictions.

Related Occupations

Construction and building inspectors combine knowledge of construction principles and law with an ability to coordinate data, diagnose problems, and communicate with people. Workers in other occupations using a similar combination of skills include engineers, drafters, estimators, industrial engineering technicians, surveyors, architects, and construction managers.

Sources of Additional Information

Information about certification and a career as a construction or building inspector is available from the following model code organizations:

☛ International Conference of Building Officials, 5360 Workman Mill Rd., Whittier, CA 90601-2298. Internet: **http://www.icbo.org**

☛ Building Officials and Code Administrators International, Inc., 4051 West Flossmoor Rd., Country Club Hills, IL 60478. Internet: **http://www.bocai.org**

☛ Southern Building Code Congress International, Inc., 900 Montclair Rd., Birmingham, AL 35213.

Information about a career as a home inspector is available from:

☛ American Society of Home Inspectors, Inc., 932 Lee St., Suite 101, Des Plaines, IL 60016. Internet: **http://www.ashi.com**

For information about a career as a State or local government construction or building inspector, contact your State or local employment service.

Construction Managers

(O*NET 15017B)

Significant Points

- Construction managers must be available, often 24 hours a day, to deal with delays, bad weather, or emergencies at the site.
- The increasing level and complexity of construction activity should spur demand for managers.
- Individuals who combine industry work experience with a bachelor's degree in construction or building science or construction management should have the best job prospects.

Nature of the Work

Construction managers plan and direct construction projects. They may have job titles, such as *constructor, construction superintendent, general superintendent, project engineer, project manager, general construction manager, or executive construction manager.* Construction